

THE FY 2004 IMPLEMENTATION PLAN FOR NWS TRAINING AND EDUCATION

I. OVERVIEW

The purpose of this document is to specify training and education activities for National Weather Service (NWS) staff in fiscal year (FY) 2004. The requirement for the FY 2004 Implementation Plan for NWS Training and Education (IP04) is specified by the NWS National Strategic Training and Education Plan (NSTEP).

The NSTEP process of determining and prioritizing training requirements within available discretionary budgets was coordinated by the NSTEP Field Requirements Group (FRG). The FRG representatives for the IP04 process included the Regional Scientific Services Division Chiefs or Regional Scientists and the National Centers for Environmental Prediction's (NCEP) Executive Officer. Members of the NSTEP Team's FRG and other experts participated in conference calls during spring 2003 to specify the highest priority NWS training to be accomplished in FY 2004. Tables 1 and 2 show the final in-residence classes and FY 2004 training expenditures, respectively, as determined by the NSTEP process.

This document provides the requirements for the NSTEP Heads of Training Group (HOTG) to develop and/or offer the instructional components indicated herein during FY 2004. The coordination of the entire NSTEP process, including development of this plan, was facilitated by the Office of Climate, Water, and Weather Services (OCWWS) Training Division. Additional information on NSTEP may be accessed at:

<http://www.nws.noaa.gov/om/os/org/training/nstep.pdf>.

The remainder of this document is structured as follows. A section on how training meets NWS and NOAA performance goals is provided in Section II. FY 2004 contingencies and challenges due to budget and due to the A-76 study at the NWS Training Center (NWSTC) are described in Section III. A summary of definitions and terms used in conjunction with the Professional Development Series process is provided in Section IV. A detailed summary of training plans for FY 2004 is provided in Section V. These plans include Professional Development Series (PDS)-related residence courses and distance-learning development, in addition to other programmatic training activities for which funds have been

identified. Information on the NWS Learning Management System is given in Section VI. Finally, Section VII contains information on new and unfunded training requirements.

There are several attachments to this document. Table 1 contains a summary of all in-residence classes to be offered in FY 2004. This summary provides details related to class size and length, funding source, slot allocation by Region, and itemized costs (including contract and supply costs for all classes). Table 2 contains the complete listing of activities associated with the discretionary portion of the training budget as prioritized by the FRG. In both Tables 1 and 2, new items in FY 2004 are highlighted in yellow. Table 3 contains the non-discretionary portion of the training budget, including labor, telecommunications, and other necessary operating charges.

Table 4 depicts the complete set of all PDSs and their development status. Table 5 contains a prioritized list of unfunded requirements as determined by the FRG. Finally, Attachment 1 provides a description and notes the intended audience of all FY 2004 residence courses. The labor costs of the government FTEs in the OCWWS Training Division are not listed, nor is the non-classroom support provided by the Automated Surface Observing System (ASOS), Next Generation Weather Radar (NEXRAD), and Advanced Weather Interactive Processing System (AWIPS) programs to the NWSTC and the Warning Decision Training Branch (WDTB).

II. GPRA, NWS, AND NOAA STRATEGIC GOALS

The training the NWS provides to its staff is designed to meet Government Performance and Results Act (GPRA), NWS, and National Oceanic and Atmospheric Administration (NOAA) Strategic Goals. A significant amount of NWS training activities are provided to help meet GPRA goals related to improving warning performance, and Goal 1.0 in the NWS Strategic Plan: Deliver Better Products and Services. This training supports outcome measures related to two of the four goals identified in the NOAA Strategic Plan: "Understand climate variability and change to enhance society's ability to plan and respond"; and "Serve society's needs for weather and water information." The NWS Leadership Academy supports NWS Strategic Plan Goal 4.4, "Enhance the professional development and training program for our workforce to include teamwork, leadership, diversity, Equal Employment Opportunity (EEO),

customer service, and implementing change. NWS training also meets NWS GPRA Goals with respect to improving forecasts and warnings. Specific goals met by each category of training are specified in Section V of this document.

III. FY 2004 CONTINGENCIES AND CHALLENGES

This year, it is important to identify two major issues which will impact IP04. The first major issue is related to budget, while the second is due to ongoing A-76 activities at the NWSTC.

A. Budget Impacts

The NWS training budget has remained level funded since 1996. In fact, for FY 2004, the training budget absorbed an additional \$140,000 cut which carried over from FY 2003. This provided serious challenges in the efforts to meet training goals set forth by the NWS and NOAA.

Each year, the OCWWS Training Division receives new training requirements from NWS Headquarters offices and NOAA. An example of such mandated training is a "Fall Protection and Rescue Recertification" course offered for those employees who have previously completed the initial Fall Protection training and meets a newly established NOAA requirement modeled after current industry standards. In order to train all staff required to climb towers, a total cost of over \$500,000 would be required, or roughly 11 percent of the entire training budget. In order to reduce costs to enable other critical training needs to be funded, IP04 allows for two people per site and Regional specialists to be trained, at a cost of \$378,000. The NWS Office of Operational Systems (OPS), NWSTC and the Regions will work together to examine alternative cost-effective strategies to accomplish this training such as using local/regional vendors, having the NWSTC hire a contractor to visit regional sites, etc. beginning in FY 2005.

The NSTEP process expanded for IP04 to include all NWS Headquarters offices. As a result, additional representation has been added to the NSTEP Team's NHG for the IP04 process. Representatives from the Chief Financial Officer (CFO), the Office of the Chief Information Officer (CIO), and additional representation from the Office of Science and Technology (OS&T) brought a dramatic increase in national training requests.

Due to the impacts stated above, many areas took significant cuts for FY 2004, including eliminating direct AMS Journal access for all NWS offices at \$110,000 (offices can request Journal articles from the NOAA Central Library), not funding the Senior Leadership Potential Program at \$210,000, and steep cuts (nearly 5 percent compared to FY 2003 levels) to needed systems and Information Technology (IT) training. To help offset the impact to the training budget, the Financial Investment Review Committee (FIRC) of the NWS Corporate Board has agreed to provide up to an additional \$3,000,000 to the NSTEP training budget in FY 2004. The exact amount will not be specified by the NWS CFO until the final FY 2004 NWS funding allocation is set. Tables 1 to 3 of IP04 do not reflect this additional funding, which will be spent on a prioritized list of FY 2004 unfunded items, provided in Section VII, or on higher priority training needs should those be identified in the interim.

B. A-76 Impacts

The NWSTC has been identified for (and is currently in the midst of) an outsourcing process as specified by Office of Management and Budget (OMB) Circular A-76. This process requires the functions of the organization under study to be migrated to a contract environment based on demonstrated efficiencies to the government.

The contract, which is specified for a period of 5 years, may be carried out by an outside contractor or by the government itself. However, even if the government is selected, the organization is still overseen by contract. Thus, the A-76 process guarantees a change in the way NWSTC will operate regardless of who is awarded the contract.

The A-76 process first requires generation of a document called the "Performance Work Statement" (PWS). The PWS is essentially a document describing all of the work to be performed by the organization under study. The PWS is an extensive document which also includes sections such as an inventory of all equipment and furniture on site, and all references, policies, regulations, etc. applying to the current government personnel on site. While the functions specified in the NWSTC PWS will likely contain many of those already being carried out, there is no requirement for the PWS to exactly match current functions.

Once the PWS is completed, it is announced for bid by interested contract entities. The government (NWSTC in this case) is one of those entities, with their bid referred to as the "Most Efficient Organization" (MEO). There is considerable evidence from other government agencies indicating the size of the MEO is typically downsized by up to one third of the current staffing and current grade structure is not guaranteed.

When all contract bids are received by the NOAA Contracting Officer, a Source Selection Evaluation Board (SSEB), made up of staff familiar with the operations of NWSTC, will evaluate all bids based on a "best value" contract approach. Following this evaluation, the SSEB sends their recommendation to an NWS official for selection signature under "best value". Following this, a recommendation is sent to the NOAA Contracting Officer for formal selection. This selection date is currently targeted for May 30, 2004, although this date is still being negotiated.

Based on the above, the A-76 process will have the following impacts on IP04:

- S Due to the uncertainty of future job stability, it is typical for at least some staff to leave organizations which are undergoing an A-76 process. If staff leave and cannot be replaced (which is also typical), NWSTC course offerings specified in this IP04 may be at risk.
- S If the new organization (either MEO or outside contractor) is put into effect during FY 2004, current budgets and/or functions of NWSTC will be subject to revisions which cannot currently be foreseen.

The OCWWS Training Division will keep NSTEP Team members appraised of developments in the coming year and will be prepared to lead reprioritization of items specified here as needed.

IV. PROFESSIONAL DEVELOPMENT SERIES (PDS) PROCESS - DEFINITIONS AND TERMS

NSTEP defines a PDS as "a set of integrated instructional components and presentations which describe the skills, knowledge, and abilities necessary to fulfill a major job responsibility." Each PDS is made up of a series of Professional Competency Units (PCUs) and Instructional

Components (ICs), which are defined as follows:

PCU: Taken together, PCUs make up the integrated set of related job skills and abilities required to fulfill a major job responsibility (i.e., a PDS). Each PCU specifically defines the skills or abilities individual staff are expected to attain in a given area of job performance. Table 4 shows the number of PCUs for each PDS, along with their development status.

IC: ICs are the specific training modalities used to train the job skills outlined in a specific PCU (e.g., classroom, teletraining, online). A number of different training modalities may be used to accomplish required training within each PDS and even within each PCU. All PDS information is contained as part of the NWS Training Internet home page (NWSTRN). NWSTRN is a cross-cutting reference source for all NWS training activities. This page can be accessed at:

<http://www.nwstc.noaa.gov/nwstrn/>

A facsimile of Table 4 is accessible via the "Professional Development Series" hyperlink on NWSTRN, with hyperlinks provided for each PCU box to access specific PDS definitions and available training.

NWSTRN is designed so staff in any NWS position can easily identify the suite of basic job skills they are expected to master.

The listing of areas in which PDSs have been developed is provided below:

- (1) Aviation Weather Prediction
- (2) Convective
- (3) Numerical Weather Prediction
- (4) Integrated Sensor Training
- (5) Forecaster Development Program
- (6) Management, Supervision, and Leadership
- (7) Hydrology
- (8) Advanced Weather Interactive Processing System
- (9) Engineering, Electronics, and Facilities
- (10) Cooperative Observer/Hydrometeorological Technician Duties
- (11) Marine Weather Services
- (12) Fire Weather

- (13) Climate Services
- (14) Administrative
- (15) Interactive Forecast Preparation System Training
- (16) Winter Weather

Listed for each PDS in Table 4 are the associated number of PCUs, along with their developmental status. A green box with an "F" indicates all initial training materials for the PCU have been developed/finished and are available for use. These materials undergo periodic updating to ensure consistency with new science and technology. A yellow box with a "U" indicates training development for the PCU is under development but not yet complete. A red box with an "N" denotes training development has not yet started for the PCU.

V. TRAINING PLANS FOR FY 2004

In this section, detailed training plans for FY 2004 are presented. Per the PDS list provided at the end of Section IV, subsections (A) through (R) in Section V cover training activities in the respective PDSs. Other training activities funded are covered in subsections (Q) and (R).

A. Aviation Forecasting PDSs

COMET will deliver a "Distance-Learning Aviation I Course" (DLAC 1) using computer-based learning modules, webcasts, and teletraining on the topic of improving ceilings and visibility forecasts of fog and stratus. This training will help to meet the NWS Performance Goal of improving ceiling and visibility forecast accuracy and false-alarm ratio. This will be offered to all aviation focal points, in addition to up to 200 to 300 forecasters in FY 2004. The teletraining will be delivered by COMET staff and other subject matter experts in the NWS. The teletraining sessions will be hosted either locally or regionally, or archived as a webcast for those forecasters who want to take the entire course on-line.

In order to meet the NWS goal of increasing the probability of detection for turbulence, icing and thunderstorm warnings and to reduce the false alarm rate by 50 percent, the OCWWS Aviation Services Branch will fund a team of COMET meteorologists and instructional designers to begin work on a "DLAC 2" to focus on convection and the hazards it creates to the aviation community. The DLAC 2 course is scheduled to be delivered in FY 2005. In addition, this team will develop 6

hours of web-based instruction on Aviation Forecasting modules, including situational awareness, monitoring and analysis with new satellite tools, use of local climatology, use of mesoscale models for the short-term, and small-scale mesoscale processes.

The NWSTC will work to develop an online Aviation Operations Course for all forecasters focusing on the impacts of aviation forecasts on customers during FY 2004.

B. Convective PDS

The Convective PDS has two goals. First, to outline the scientific process and provide suggested job tasks or methodologies which should be employed in the forecasting of severe convection. Second, to provide a guide to current convective-related training material which addresses specific job skills needed to issue severe warnings for convective weather. The training provided by the WDTB meets NWS severe weather performance measures, as well as the NOAA Mission Goal to "Serve society's needs for weather and water information".

Three primary training foci will occur during FY 2004:

1. Weather Event Simulator (WES). WDTB will release updated versions of WES software to ensure it is operationally representative and to enhance effectiveness of this critical training tool. This will be done with the assistance of a WES Development position in FY 2004.
2. New Warning-Related Functionality. WDTB will conduct distance-learning training on new WSR-88D and AWIPS warning-related functionality associated with build releases.
3. Advanced Warning Operations Course (AWOC). AWOC will provide WDM principles to all NWS forecasters. In FY 2004, AWOC development will consist of a core track and a severe weather track. Topics for the core track include Situational Awareness, Decision Making, Office Strategies, Communication, Collaboration, Post-Event Assessment, Data Quality, Societal Impacts, and Public Perception. Topics to be covered in the severe track include Severe Hazards Threat Assessment, Interrogation Procedures, and at least two Severe Weather Simulations (fulfills a requirement in NWS Instruction 20-101).

The core track and severe track will each consist of 10 to 16 hours of material. A majority of the material will be delivered asynchronously (without direct contact to an instructor), using techniques such as web-based modules and recorded teletraining sessions. Some of the material will be delivered synchronously (live instruction with direct contact) via teletraining, and will be offered a sufficient number of times (more than 50) to accommodate completion by all students.

A key component for the success of AWOC is on-site facilitation. Accordingly, a 3-day "AWOC Facilitator Workshop" for Science and Operations Officers (SOOs) will be held in FY 2004. This workshop will feature presentations by both instructors and subject matter experts on course purpose, content, and administration. The SOOs will be trained on ways to effectively deliver and evaluate simulations, and gain hands-on experience with the simulations.

C. Numerical Weather Prediction (NWP) PDS

Providing NWS forecast staff with a working knowledge of NWP models is important because the overall skill of the NWS forecast program beyond the 12-hour forecast projection is driven primarily by the operational models and the skill of the forecasters to correctly interpret and use the models. At the same time, numerical models are constantly undergoing upgrades and enhancements.

Two COMET Project Scientists are assigned to NCEP's Environmental Modeling Center (EMC) and the OCWWS Training Division to accomplish development work for the NWP PDS (salaries shown in Table 3). Funds are also included for computer support for these two positions.

These positions provide for the maintenance, updating, and additions to PCU2, "Understanding Current Characteristics of Operational NWP Models", information on the NCEP operational models as the models evolve, and updates to new PCU3, "Using Numerical Guidance in the Forecast Process". Cases are published to show practical application of the materials in PCU1, "Understanding NWP Models and Their Processes", and PCU2. In addition, teletraining will be provided to support new PCU1 material on ensembles. Training on dispersion models will be augmented. Interaction with WFOs will continue through the newsgroups, as well as participation in SOO

workshops, WDTB workshops in the COMET classroom, and a few site visits. Scientific evaluation of select Interactive Forecast Preparation System (IFPS) Smart Tools will be performed. Support will be provided to other PDS development efforts when there is overlap with NWP topics. NWP training meets the NOAA Mission Goal of serving society's needs for weather and water information, and the NOAA Cross-Cutting Priority of Homeland Security.

D. Integrated Sensor Training (IST) PDS

The IST PDS addresses the need to make available to field users easily accessible, short teletraining and Web-based training modules on the characteristics of new and derived data sets, how to utilize these data sets on AWIPS, and how to best integrate these data sets with other data sets to improve the warning and forecast process. This training is linked to improving NWS severe and winter weather performance measures and to serve society's needs for weather and water information.

Within the IST PDS PCUs, the areas of highest priority for development in FY 2004 are:

- S Using Radar Data and Products
- S Using Satellite Data and Products including the development of a new satellite hydrometeorology course
- S AWIPS Multi-Source Data Displays
- S Model Data Assessment (in coordination with NWP PDS)
- S Using AWIPS in the Forecast Process
- S Integrating VISITview into the WES
- S LMS Implementation and Further Development

Funds are provided to pay salaries/benefits for employees at the Cooperative Institute for Research in the Atmosphere (CIRA) and the Cooperative Institute for Meteorological Satellite Studies (CIMSS). These employees develop distance-learning materials associated with the IST PDS. The Virtual Institute for Satellite Integration Training (VISIT) project is a combined NWS, National Environmental Satellite, Data, and Information Service (NESDIS), and University effort to provide science infusion and training in a cost-effective manner directly to forecasters and other NOAA staff. This is accomplished by providing teletraining sessions using VISITview software to these staff. This funding provides for continued support and evolution of the VISITview software. A

major upgrade in FY 2004 will be to integrate VISITview within the WES. Support is also provided for all aspects of developing and conducting live teletraining sessions, such as scheduling, monitoring, evaluating, and issuing certificates of completion. All IST PDS/VISIT sessions are captured as archived teletraining sessions available for use by all weather forecasters as Web-based training.

IST PDS/VISIT staff will continue to work with OCWWS Training Division staff to upgrade and improve the new Learning Management System (LMS - described in Section VI) during FY 2004. A major activity in this area will be to upgrade the LMS to provide all aspects of teletraining support from registration and scheduling to evaluation and certificates.

As part of the IST PDS, the WDTB will continue to offer an AWIPS-based WSR-88D Distance Learning Operations Course (DLOC) for those NWS meteorologists and hydrologists who have either not taken the original 4-week, in-residence WSR-88D Operations Course or the previous DLOC training offered by the WDTB. This course includes a 1-week workshop at COMET.

The National Polar-Orbiting Operational Environmental Satellite System (NPOESS) program will provide NWS with funding to continue development of an NPOESS information and training web site at COMET. NESDIS will continue to provide funding to the NWS for COMET to provide additional Geostationary Operational Environmental Satellite (GOES) updates on the COMET Meteorology, Education and Training (MetEd) website and in the Meteorology section of the NWS LMS.

E. Forecaster Development Program PDSs

The Forecaster Development Program (FDP) provides a training plan for new meteorologist interns (referred to as interns hereafter) to prepare them for a career as a meteorologist. Training materials associated with the FDP may also be relevant to newly hired forecasters who lack NWS experience. The FDP contains three phases:

- S** Operational Basics - Ensures interns have the skills needed to perform the duties currently associated with the Hydrometeorological Technician (HMT) position.
- S** Forecast Familiarization - Provides interns with a set of forecast-related training material to be completed while working standard HMT rotation. Allows interns to gain a

- common base of knowledge on operational topics.
- S Professional Development - Encourages continuing education for meteorologists and helps to decide the career path based on the interns' interests.

The latest version of the FDP resides on the NWSTRN web page. As a related activity in FY 2004, NWSTC will work with Regional representatives and the OCWWS Training Division to review the FDP requirements. Goals of the review process would be to identify: 1)any new training requirements which need to be added to the FDP; 2)any training which needs to be updated or revised, 3)training which is no longer relevant and needs to be removed from the FDP. NWSTC will also continue working on converting the paper-based modules from the previously held Forecaster Development Course to the World Wide Web (WWW). This activity requires no financial resources. In addition, NWSTC staff will also meet with the United States Navy and Air Force Weather staff to see what common training materials can be shared and developed for NWS Interns, HMTs, and Department of Defense enlisted forecasters.

F. Management, Supervision, and Leadership PDSs

The NWS Strategic Plan indicates leadership training will be completed for all supervisors and leaders by 2005. Much of this training will be accomplished through the Management, Supervision, and Leadership PDSs, and helps to meet NOAA's Cross-Cutting Priority of "Organizational excellence: leadership, human capital, facilities, information technology and administrative products and services."

There are four PDSs defined in this area:

- S Office Management and Administration
- S Leadership
- S Human Resource Management
- S Customer/Partner Service Management

In order to fulfill training requirements associated with the above PDS topics, three courses will continue to be offered by the NWSTC. The "Management and Supervision" course for Meteorologists-in-Charge (MICs); Hydrologists-in-Charge (HICs); Electronics Systems Analysts (ESAs), Data Acquisition Program Managers (DAPMs) and NCEP, Regional, and National Headquarters supervisory personnel fulfills the Office of Personnel Management 80-hour requirement for management and

supervision training. The 1-week "Field Operations Management" course for the first-line management team at field offices provides basic management concepts for those staff who act as office manager when the MIC/HIC or NCEP Center Director is out of the office. The first-line management team includes the SOO, Warning Coordination Meteorologist (WCM), Development and Operational Hydrologist (DOH), Lead Forecasters, Senior Hydrologic Forecasters, and Senior Hydrometeorological Analysis and Support (HAS) Forecasters at each field office. However, first line management team members may attend the "Management and Supervision" course at the discretion of Regional/NCEP management as slot vacancies arise.

In addition, NWSTC offers the Executive Leadership Seminar (ELS) for managers and Headquarters program leaders. This course is designed to develop key leadership competencies through an interactive and integrated approach. Open to all federal agencies, it offers an effective learning environment and venue for the open exchange of best practices.

A new "Effective Staff Operations" course will be developed for FY 2004. This course will provide an understanding of how information and actions are processed in NWS, improve briefing skills, and teach the elements and processes of project management. NWSTC is also planning to add an advanced leader development course as a follow-on to ELS in FY 2005. This "course" will take place over 6 to 9 month period, and will be designed to replace the Senior Leadership Potential Program (SLPP). It will consist of resident workshops, rotational assignments, shadowing and executive coaching. It will be targeted for GS-13s and above.

The NWSTC Management and Leadership staff are available to teach management and leadership tools and techniques to Regional and national meetings, and assist local offices when necessary.

Contract on-site team training and centralized team facilitator training will continue for about 30 new sites. This means 10 sites will still require team training in FY 2005.

Related to the Customer/Partner Service Management PDS, the WDTB will complete its "WDM for MICs" series of seminars. This 4- to 8-hour seminar will be provided at Regional MIC

meetings. There will also be additional sessions provided for NWS/NCEP Headquarters managers.

G. Hydrology PDSs

The following PDSs described the training associated with the NWS Hydrologic Services Program:

- S Managing the Hydrology Program
- S Hydrologic Forecasting
- S Model Calibration and Hydrologic Procedure Development
- S Forecasting Flash-Flood Events
- S Assessing Near-Term Hydrologic Guidance and Issuing Public Forecasts
- S Ensemble Hydrologic Forecasting
- S Assimilating Hydrometeorological Data
- S Quantitative Precipitation Forecasting

The highest priority activities for FY 2004 were determined from these PDSs. The hydrology related training meets the NOAA Mission Goal to "Serve society's needs for weather and water information", and NWS Performance goals to increase the lead time and accuracy of flash flood warnings and precipitation forecasts. The "Basin Customization and Localization" course will continue to be offered at COMET. This course, attended by WFO Service Hydrologists (SHs) and hydrologic or Geographic Information System (GIS) focal points, will include an overview to the FFMP approach and the basin delineation process, along with guidance to customize and localize original delineated basin sets. Training is provided on identifying areas where the basin data set would be modified to enhance services, detailing the process necessary to perform and implement these enhancements.

FY 2004 will mark the beginning of a dedicated hydrology development team at COMET, which will be funded jointly by the OCWWS Training Division and the NWS Office of Hydrologic Development (OHD). This team will facilitate additional hydrology training which otherwise would not have been possible given FY 2004's tight budget constraints. The team will focus on the development of training in the following areas:

- Flash Flood/Heavy Precipitation Workshop
- Basic Hydrologic Science
- Advanced Hydrologic Science

- Hydrologic Ensemble Forecasts

To address the topics mentioned above, a new 1-week "Flash Flood/Heavy Precipitation Workshop" will be held to discuss the use of the Flash Flood Monitoring and Prediction (FFMP) application. Development will begin on a three week "Advanced Hydrologic Science Workshop". A distance learning activity will be initiated to will provide a blended distance learning course on basic hydrologic science. In addition, a synchronous workshop on hydrologic ensemble forecasts will be developed.

NWSTC will continue to offer a "WFO Hydrology Program Management" course, which provides training to all SHs and hydrologic focal points on basic concepts specific to management of office hydrology programs. Also, two WFO Hydrologic Forecasting System (WHFS)-related courses will be provided at NWSTC. The initial "WHFS Workshop" provides training for new SHs, hydrologic focal points, and one other WFO attendee. The "Advanced Hydrologic Applications" course will be offered for SHs and RFC forecasters to focus on the implementation of the site-specific forecast functionality and the multi-sensor precipitation estimation (MPE) function within the AWIPS WHFS software. The goal is to provide this training to the prior attendees of the "WHFS Workshop".

Enhancements to the fielded versions of the AWIPS WHFS software and the NWS River Forecast System (NWSRFS) software will be addressed via teletraining. NWSTC hydrology staff will work closely with the OCWWS Hydrologic Services Division and OHD personnel to determine the contents of the teletraining modules. The NWSTC hydrology staff will develop the teletraining materials and determine the appropriate delivery mechanism.

Funding will also be continued to support travel to workshops provided by OHD subject matter experts. Topics for these workshops will be selected among the following:

- S RFC HAS Forecaster workshop
- S ThreshR/Flash Flood Guidance (FFG) workshop
- S Ensemble Streamflow Prediction (ESP) workshop
- S Reservoir Operations workshop
- S Basic Operational Forecast System (OFS) workshop
- S Advanced OFS workshop
- S FLDWAV model workshop

- S Model Calibration workshop
- S Hydrologic Database workshop
- S DOH Science workshop
- S Hydrologic Routing/Hydraulics workshop
- S Statistical Hydrology workshop
- S Snow Modeling workshop

Final priorities will be determined by the regional HSDs, in consultation with OCWWS HSD and OHD. The workshops will be addressed in priority order, with the total number conducted being dependent on the number of attendees at each workshop. A minimum of 3 workshops will be conducted, with the possibility of holding as many as 5.

As in past years, funding can be made available for WFO, RFC, and NCEP staff to take hydrology and hydrometeorology training at local universities or through other means. This funding is included within the "Regional Training Funds" entry in Table 2. Even though Table 2 shows a zero dollar amount for this item, it is each individual Region's/NCEP's purview to allocate the "Regional Training Funds" as necessary to address specific training needs.

H. AWIPS PDSs

The training requirements in this area emanate from the three AWIPS PDSs: Operating AWIPS, AWIPS System Administration and Maintenance, and Implementing Local Applications on AWIPS. This training meets the "Organizational excellence" NOAA Cross-Cutting Priority.

After examining the exact nature of the training needs through the individual PCUs, the FRG determined some of these needs could continue to be addressed via the following courses at NWSTC:

"AWIPS Operations Support" is a course for SOOs, DOHs, and AWIPS Focal Points designed to ensure all sites have a trained focal point available to provide operational support to AWIPS and ensure its proper use.

The "AWIPS Applications" course objective is to optimize local developers' ability to design and utilize AWIPS local applications, including important software and Local Data Acquisition and Dissemination (LDAD) utilization training.

For FY 2004, a new "Intermediate LINUX" course will be developed and offered for new Electronics Technicians (ETs) and Information Technology Officers (ITOs) to provide intermediate level LINUX skills to assist in support of NWS IT-based systems.

To meet training requirements related to attrition, an "AWIPS Systems Manager" course for Electronic Systems Analysts (ESAs) will continue to be offered at the NWSTC. This course is intended to provide ESAs (and/or RFC/NCEP equivalents) with an understanding of AWIPS hardware, communications, software components, and dataflow.

The NWSTC will continue to work with the NWS Office of Science and Technology and the AWIPS contractors to develop teletraining sessions for any AWIPS Build software release(s) as required.

Finally, funding is provided to facilitate local provision of contractor-provided Information Technology (IT) systems training related to AWIPS. These funds, described in subsection (I), will also be used to procure contract training for various local systems administration training needs.

I. Engineering, Electronics, and Facilities PDSs

There are 11 PDSs identified in this area:

- S Facilities Maintenance
- S Facilities Management
- S Environmental Compliance
- S WSR-88D Maintenance
- S NWR Maintenance
- S Upper Air (Profiler) Maintenance
- S Data Acquisition / Dissemination Systems Maintenance
- S IT Systems and Network Support
- S General Engineering Skills
- S Safety and Health
- S ASOS Maintenance

As indicated by these PDSs, critical training needs focus on systems personnel being able to understand, utilize, and repair the systems needed to properly integrate the many new and derived data sets now available; make the transition of the work force from hands-on to systems support; and take responsibility for ensuring adequate and economical facility

maintenance to meet operational requirements. Training provided meets the "Organizational excellence" NOAA Cross-Cutting Priority.

Much of the training will be accomplished via classes offered by NWSTC. Training will include the continuation of courses on new and currently used systems. These courses include "Automated Surface Observing System (ASOS) Maintenance," "Introduction to NWS Systems," "Automated Radio Theodolite (ART) Rawinsonde System Maintenance," "WSR-88D Maintenance (expanded to include information previously provided in the "WSR-88D Open Radar Product Generator (ORPG) course)," "WSR-88D Microwave Line-Of-Sight (MLOS) Maintenance," "Console Replacement System (CRS) Maintenance," "Crown Transmitter Maintenance," "Scientific Radio Services (SRS) Transmitter Maintenance," "Armstrong Transmitter Maintenance," "CRS Network Operations," "Fall Protection and Rescue," "Environmental Compliance," and "Safety Training". Descriptions of the above classes can be accessed via the NWSTRN Home Page at:

<http://www.nwstc.noaa.gov/nwstrn/classes.html>

A "Fall Protection and Rescue Recertification" course will continue in FY 2004. This course meets a NWS requirement for recertification of tower climbing personnel every 2 years. The NWSTC, Regions and OPS will work together in FY 2004 to examine and develop cost-effective alternatives for this recertification training.

A new "WSR-88D Open Radar Data Acquisition (ORDA) Maintenance" course will be offered in FY 2004. The course objective is to provide the skills and knowledge required to perform operation and maintenance of the ORDA System, explaining the interconnections of the system as well as the maintenance philosophy. Also, an "RRS Maintenance" course will be offered to provide ESAs and ETs with sufficient familiarization with the system to perform operation, maintenance and repair. Also, a "RRS Operations" distance learning course will be offered to provide site operators with sufficient familiarization with the system to perform successful radiosonde flights. Funding for these courses will be provided by the RRS program.

Concurrently, funding has been identified to support local facilities maintenance and IT systems training to ensure field

staff know how to repair vital mechanical and electrical systems; are aware of good maintenance practices; and possess a clear knowledge of how to comply with building, electrical, mechanical, environmental, and safety codes and regulations. These funds will also be used to provide necessary training for the recently created IT Officer position at WFOs and are included in the "Regional Training Funds" portion of Table 2, which will be transferred to the Regions for implementation.

J. Cooperative Observer/HMT PDSs

There are three PDSs which describe Cooperative Observer and HMT-related training:

- S Cooperative Program Management
- S Surface Observing Program
- S Upper Air Program

Training in FY 2004 will focus on the Cooperative Program Management and Surface Observing Program PDSs. A "Data Acquisition Operations" course will continue to be offered at NWSTC to teach all NWS operational and management staff involved in data acquisition to address identified training deficiencies associated with equipment operation, and to review the latest NWS policies and procedures of the data acquisition process. The NWSTC attrition course entitled "Cooperative Network Operations" provides training for those managing the Cooperative Observing Program. The course includes details on program requirements, purposes, and objectives with topics including observer recruitment, equipment installation and maintenance, and network data quality control. This training meets NOAA Mission Goal to "Serve society's needs for water and weather information", as it trains staff how to maximize the accuracy and completeness of data used in NWS modeling and operations.

K. Marine Weather Services PDS

To address the training needs identified in the Marine Weather Services PDS, funds will be provided to continue Regional marine workshops. A total of four workshops will be funded in FY 2004. The Regional marine program manager and an NCEP Ocean Prediction Center focal point, as appropriate, will define curricula for these workshops, and will engage local academic experts to complete training based on requirements specified by this PDS. A COMET development team will continue to work with the Marine PDS Producers to convert existing "Wind and Waves" training materials on a COMET CD-based module and convert them to the WWW. In addition, the team will work to develop between two to four additional marine web modules.

Marine training is important to meet the NOAA Mission Goal to "Serve society's needs for weather and water information", as well as NWS Performance Measures to increase the accuracy of marine wind and wave forecasts.

L. Fire Weather Related PDSs

The Fire Weather PDS and the Incident Meteorologist (IMET) PDS discuss Fire Weather training. Materials or courses to address the majority of training requirements for both the Fire Weather and IMET PDSs are already available and continue to be amalgamated for access on NWSTRN by the PDS Producers. Two fire weather related courses will be offered in FY 2004. The revised "IMET Workshop" will train IMETs on new technology advances and techniques. The "Fire Weather Forecasters Course" trains fire weather focal points on the latest advances in fire weather forecasting. This training meets the NOAA Mission Goal to "Serve society's needs for weather and water information" by equipping appropriate NWS staff to provide critical fire weather forecasts and support.

M. Climate Services PDS

To meet critical training requirements defined in the Climate Services PDS, two "Climate Symposia" will be conducted at COMET in FY 2004, with one being funded by the OCWWS Climate Services Division (CSD) using non-NWS funds. This workshop for SOOs, climate focal points, and limited personnel at the Climate Prediction Center (CPC) and NWS Headquarters, will provide background for all NWS climate products, and will

address the training requirements of PCU 2: "Demonstrate Understanding of Climate Variability Sufficient to Apply to Local Services". This will provide forecasters with the resources to answer questions from the public on how climate fluctuations affect local weather variability, as well as information on the latest developments in the climate analysis and forecasting.

Efforts will continue in FY 2004 to convert Climate Symposium lectures into webcasts or alternative online presentations to address PCU 4: "Interpret and Apply CPC Products." COMET will record Climate Symposium lectures and convert them to webcasts for this purpose. OCWWS CSD will work with the VISIT program to develop 2-3 teletraining sessions on materials not in the Climate Symposium. Also, development on a new PCU 6 - "Demonstrate knowledge of the Importance of Timely, Accurate, and Consistent Climate Weather Observations and their Broad Range of Data Applications" will begin in FY 2004. This new PCU will ensure NWS field staff understand accurate, consistent, timely, quality controlled and well documented climate observations form the foundation for NOAA's basic mission as the nation's steward of environmental data.

Climate training meets two NOAA Mission Goals: "Understand climate variability and change to enhance society's ability to plan and respond", and to "Serve society's needs for weather and water information".

N. Administrative PDS

The majority of training materials for the Administrative PDS are already available and are being amalgamated for access on NWSTRN by the PDS Producers. The FRG will continue to allocate funds for Regions to conduct formal Administrative Support Assistant (ASA) training during FY 2004. This training will include travel/per diem costs to attend residence and correspondence courses, and commercially available training. Funding is included as part of the "Regional Training Funds" line in Table 2. This training meets NOAA's Cross-Cutting priority of "Organizational excellence".

O. IFPS PDS

IFPS training in FY 2004 will be especially important given the formal implementation of IFPS Initial Operating Capability (IOC) in September, 2004.

To accomplish the training associated with this PDS in FY 2004, in-residence workshops, symposia, and distance learning techniques will be used. First, the NWSTRN web site links to an "IFPS Training Information Page (ITIP)" which contains links to IFPS training documentation, teletraining schedules, and other current training information. Teletraining sessions will address topics contained in PCU3: "Forecast Methodology", PCU4: "Collaboration", PCU5: "Operations Management", and PCU7: "Focal Point Duties". These sessions will be recorded and linked from the ITIP web page. To accompany these sessions, experts will be made available at various times to answer questions on the recorded presentations. The NWSTC will maintain a threaded discussion or "Forum" feature on the ITIP to allow for near-real-time question and answer interaction among all IFPS users. Finally, the Rapid Prototype Project (RPP) and IFPS "list servers" will be utilized to answer questions which arise on a near real-time basis.

In addition, the "Boundary Layer Meteorology" symposium will continue at COMET in FY 2004. This symposium, for SOOs, will focus on training in micrometeorology and boundary layer processes and evolution to form the science foundation for better use of IFPS capabilities, especially improvements to smart tools and smart initializations, to provide improved digital graphical forecast products to NWS customers. It also is an opportunity for science infusion from OST, academia, NOAA labs, and national and local NWS offices into the IFPS operational process.

IFPS training meets NWS Strategic Goal 2.5 to "Prepare and disseminate NWS products in digital form". It also meets the NOAA Mission Goal to "Serve society's needs for weather and water information". IFPS is particularly critical in this regard, as it will now be the primary means for formulating and communicating NWS forecasts and products to customers.

P. Winter Weather PDS

The goal of this PDS is to address the skills needed to perform winter weather forecasting duties and supporting activities in accordance with the NWS Mission. The WDTB will continue to maintain the Winter Weather PDS to ensure the latest winter weather related tools and techniques are available for use by forecasters. Training defined in the PDS meets NWS Performance Measures to increase the lead time and accuracy of winter storm warnings.

Q. Other Training Activities - Table 2

Regional training funds: These funds are allocated to support the following kinds of activities, not fully addressed by other NSTEP training initiatives. These funds also support other required training as identified (e.g., Geographic Information System (GIS) technology). As requirements are identified, such training may be incorporated into future training or as specific items in Tables 1 and 2. These funds are made available to the Regions and NCEP for distribution to their respective field offices/centers:

- S Local facilities / IT funds: Described in Section V, subsection (I).
- S ASA training: Described in Section V, subsection (N).
- S Regional Collaborative Projects: This supports NWS/university collaborative projects, workshops, and associated computer and travel for collaborative research.
- S System Administration, Networking and Security (SANS) training: Local IT training to meet security requirements for those who have root password access.
- S Hydrology training: Described in Section V, subsection (H).

Note the respective amounts shown for each of these purposes are simply recommended amounts. Individual Regions and NCEP may allocate these regional training funds as necessary to address specific training needs.

Metis Modeling/Annotator training: This provides selected Regional and National Headquarters personnel with training on how to develop and maintain Metis software models in support of the new NWS Enterprise Architecture.

Financial Data/Reports training: Training will be provided to selected Regional and National Headquarters staff to teach financial management and analysis skills needed to use the Commerce Administrative Management System (CAMS).

COMAP course - COMET will offer a COMET Mesoscale Analysis and Prediction (COMAP) course. This course is required for new SOOs and provides graduate-level education in mesoscale meteorology topics. Specifically, COMAP is designed to increase participants' knowledge of mesoscale meteorology and new observing systems, and to enhance their capabilities in forecasting, leading training programs, and participating in research activities.

R. Other Training Activities - Table 3

COMET/University Corporation for Atmospheric Research (UCAR) Staff Grant: The COMET/UCAR Cooperative Agreement supports the costs of running the COMET classroom; costs of building and archiving case studies for use in the classroom and with the WES; costs of fulfilling data requirements for SOOs; costs for creating COMET distance-learning modules; costs for supporting the SOO program and SOO training and WCM resource sites; and costs of maintaining the COMET MetEd Internet site.

NWSTC administrative funds: Supports annual operating expenses and staff travel and training at the NWSTC.

COMET van for students: Supports the use of three vans for student use and transportation during COMET residence courses.

COMET NWS Subject Matter Expert (SME) travel: This supports SME travel in association with COMET meetings and distance-learning development. Costs of \$4,000 per week are built into each COMET residence class costs to cover government guest instructors.

NSTEP/PDS coordination meetings: This supports participant travel to training and NSTEP Team meetings as needed during the year.

OCWWS Training Division (OS6) budget: This supports Training Division and COMET Branch employee travel and training activities during the year.

Teletraining communications: This supports routine commercial communications and bridging costs for provision of teletraining sessions by the three NWS training facilities and other providers, such as NESDIS, Regional Headquarters offices, and local offices.

University Assignment Program (UAP): Funds are provided to the OCWWS Training Division each year by the NWS CFO to fund selected staff for full-time and part-time training assignments in job- or career-related study at an accredited educational facility.

VI. NWS LEARNING MANAGEMENT SYSTEM

The OCWWS Training Division is overseeing the development and implementation of a new Learning Management System (LMS) to streamline planning, registration, completion, and tracking of training activities at all levels of the NWS.

In FY 2003, the NWS entered into a partnership with the Department of Transportation's "GoLearn" (<http://www.golearn.gov/>) to purchase a web-based LMS hosted by GeoLearning Corporation. The NWS LMS is part of a NOAA- (<http://e-learning.doc.gov/noaa/>) and DOC-wide (<http://e-learning.doc.gov/>) LMS initiative. Framed as a virtual campus, the LMS Website organizes training by bureau and line office within the Department of Commerce. Three dimensional graphics illustrate a realistic campus environment and provide the context in which employees navigate the site.

All NWS employees will benefit from this system. The "My Plan" feature of the LMS presents a mechanism for employees and their supervisors to formulate personalized training plans in support of their Individual Development Plans (IDPs). The LMS also gives access to online training and registration for instructor-led (residence and teletraining) courses. Progression through all of these courses is tracked through the LMS. With the reporting features, employees can list and print their training transcripts. Managers can monitor the training activities of their staff, and Headquarters personnel can quickly generate summary reports of training progress for their regions.

The LMS provides centralized access to all training offered by each of the NWS training centers. In addition, SOOs can use the system to develop and track local training activities,

such as WES scenarios. Third-party on-line courses on a variety of topics that offered free of charge through GoLearn have been integrated into the LMS system. In addition, access to over 1,200 other third-party online learning modules is available for a flat fee of about \$80. per person per year.

The LMS automates class scheduling and registration features currently accomplished by an intensive paper-based process. Automation of these tasks allows courses to be assigned much more efficiently and provides a mechanism to quickly fill vacant slots due to last minute cancellations.

Initial LMS functionality will be released NWS-wide in early FY 2004. The OCWWS Training Division will supply detailed documentation and training to all offices on using the new NWS LMS, which will be accessible via the web at:

<http://www.nwstraining.noaa.gov>

The NWS will continue to lead the effort to enhance the LMS to better serve the needs of all DOC employees during FY 2004, including providing training officers and students access to enter historical training records into the LMS.

VII. UNFUNDED TRAINING REQUIREMENTS FOR FY 2004

Table 5 is a prioritized listing of all unfunded training requirements for FY 2004 resulting from the yearly prioritization and budget balancing processes. The FRG will review, update and prioritize these requirements to meet the NWS Corporate Board or Financial Investment Review Committee unfunded request deadlines. This list will also be used to allocate additional Base funds expected to be received from the NWS Corporate Board for FY 2004.

Table 1 - Residence Training Requirements: FY 2004 (7/15/03) - dollar figures in K

	Stud. Class	Days	Fund Source	ER	SR	CR	WR	AR	PR	NP	Other	OOS	Extra Slots	Total Slots	Student Costs per class	Supplies, Cont./		No. of classes	Class Total Cost		
																Guest In.	Total Cost per Class				
NWSTC																					
ASOS Maintenance	8	13	ASOS	8	4	8	8	2	1	0	0	1	0	32	23	4	27	4	108		
Introduction to NWS Systems	8	3	AWIPS	6	0	4	6	3	1	0	0	4	0	24	8	2	10	3	30		
ART Rawinsonde System Maintenance	6	13	Base	2	3	3	2	1	1	0	0	0	0	12	17	4	21	2	42		
Fall Protection & Rescue (recertificati	16	2	Base	55	8	30	60	26	12	0	0	25	8	224	15	12	27	14	378		
Fall Protection & Rescue (attrition)	16	3	Base	5	5	10	8	1	3	0	0	11	5	48	17	12	29	3	87		
WSR-88D Maintenance	8	33	NEX	4	6	6	5	1	0	0	0	2	0	24	52	9	61	3	183		
WSR-88D MLOS Maintenance	8	3	NEX	2	0	0	2	2	0	0	0	2	0	8	8	15	23	1	23		
WSR-88D Open RDA Maintenance Training	8	10	ORDA	7	9	11	5	0	0	0	0	0	0	32	20	3	23	4	92		
CRS Maintenance	8	6	Base	10	10	7	10	1	1	0	0	1	0	40	14	2	16	5	80		
AWIPS Systems Manager	16	12	AWIPS	5	4	2	3	1	0	0	0	1	0	16	44	8	52	1	52		
AWIPS Local Applications	16	3.5	AWIPS	6	7	7	7	2	1	1	0	1	0	32	17	3	20	2	40		
AWIPS Operations Support	16	8	AWIPS	3	3	3	3	1	1	1	0	1	0	16	31	6	37	1	37		
Executive Leadership Seminar (ELS)	35	8.5	Base	14	14	14	14	4	4	8	25	5	3	105	73	28	101	3	303		
Intermediate LINUX	12	8	AWIPS	8	19	19	8	2	1	1	0	2	0	60	24	3	27	5	135		
Management and Supervision	20	9.5	Base	12	10	16	12	8	1	3	7	3	8	80	42	12	54	4	216		
Field Operations Management	24	3.5	Base	22	25	30	24	4	2	5	0	0	8	120	25	9	34	5	170		
Cooperative Network Operations	16	8	Base	6	6	8	7	2	2	0	0	1	0	32	31	7	38	2	76		
WFO Hydrology Program Management	16	8	Base	6	7	7	5	3	1	0	3	0	0	32	31	6	37	2	74		
WHFS Workshop	8	3.5	AWIPS	1	2	1	1	1	1	0	1	0	0	8	8	1	9	1	9		
Advanced Hydrologic Applications	8	3.5	AWIPS	7	12	9	8	2	1	0	1	0	0	40	8	3	11	5	55		
Data Acquisition Operations	16	3.5	Base	13	10	10	7	6	1	0	0	1	0	48	17	3	20	3	60		
CRS Network Operations	8	3	Base	4	7	6	6	1	0	0	0	0	0	24	8	1	9	3	27		
Environmental Compliance (attrition)	27	3	Base	5	9	4	3	2	2	0	0	2	0	27	28	17	45	1	45		
Crown Transmitter Maintenance	5	3	Base	22	1	1	4	4	0	0	0	3	0	35	4	1	5	7	35		
Safety Training (attrition)	27	3.5	Base	5	8	6	3	2	1	1	0	1	0	27	28	17	45	1	45		
SRS Transmitter Maintenance	4	3	Base	6	0	1	6	3	0	0	0	0	0	16	4	1	5	4	20		
Armstrong Transmitter Maintenance	5	3	Base	22	1	1	10	4	1	0	0	1	0	40	5	1	6	8	48		
RRS Maintenance	4	6	RRS	4	4	4	4	1	1	0	0	2	0	20	10	2	12	9	108		
COMET																					
IFPS Methodology Workshop (Topic TBD)	25	5	AWIPS	22	23	28	20	2	1	4	0	0	0	100	40	4	44	4	176		
Flash Flood Workshop	27	3	AWIPS	6	5	7	4	1	1	1	2	0	0	27	33	16	49	1	49		
COMAP	18	30	Base	2	4	4	3	1	2	2	0	0	0	18	123	132	255	1	255		
Climate Symposium	27	4.5	AWIPS	4	5	5	5	3	2	1	2	0	0	27	35	16	51	1	51		
Basin Customization/Localization	18	3	AWIPS	4	6	5	2	0	0	0	1	0	0	18	23	16	39	1	39		
Boundary Layer COMAP Symposium	27	4.5	Base	11	13	15	11	1	1	2	0	0	0	54	35	16	51	2	102		
Canada Winter Weather Workshop	6	10.5	Base	1	0	1	1	3	0	0	0	0	0	6	15	0	15	1	15		
*held at FSL																					
WDTB (at COMET)																					
DLOC Workshop	27	3.5	NEX	27	30	15	29	2	2	2	1	0	0	108	32	8	40	4	160		
Summary												Funding									
NWSTC - OCWWS Base												1706		2 or 2.5		\$1,000					
COMET - OCWWS Base												372		3 or 3.5		\$1,100		\$1,200			
WDTB - OCWWS Base												0		4 or 4.5		\$1,200		\$1,300			
TOTAL OCWWS Base												2078		5		\$1,300					
														6		\$1,700		\$1,700			
TOTAL AWIPS												673		8 or 8.5		\$2,000		\$2,200			
TOTAL ORDA												92		9.5		\$2,100					
TOTAL RRS												108		10		\$2,400					
NWSTC NEXRAD												206		10.5		\$2,500		\$2,400			
WDTB NEXRAD												160		11		\$2,500					
TOTAL NEXRAD												366		12		\$2,800					
TOTAL ASOS												108		13		\$2,900					
TOTAL RESIDENCE COSTS												3791		30		NA		\$6,200			
														33		\$6,600					

Per diem rates:
 KC (NWSTC):
 131 (85 and 46)
 Boulder (COMET):
 135 (93 and 42)

TABLE 2: FY 2004 NWS Training and Education Expenditures (7/15/03)

Note: Dollar Amounts in K

	FY 2004 NSTEP Funding	FY 2004 Initiative/Other Funding
Non-Labor/Other		
SHyMet Course Development	35	0
Metis Modeling / Annotator	15	15 (from CIO funds)
Financial Data/Reports	25	25 (from CFO funds)
Aviation PDS		
COMET Aviation DL Team	0	350 (from Aviat. Init.)
Convective PDS		
Advanced Warning Operations Course (AWOC)	40	353 (from NEX funds)
WES Development Position	10	50 (from NEX funds)
Integrated Sensor Training - IST CI Salaries		
	450	0
Management, Supervision & Leadership		
On-site Team Training	100	0
Development of Effective Staff Operations Course	15	0
Project Management Training	33	0
Hydrology		
Hydrology Workshops	60	0
Development of Advanced Hydrologic Science Course	50	0
COMET Hydrology Team	150	200 (from Hydro Init.)
Marine Weather Services		
Regional Marine Workshops	90	0
Marine PDS Support	0	20 (from OS6 funds)
Fire Weather		
Incident Meteorologist (IMET) workshop	80	0
Fire Weather Forecasters Course	60	0
Regional Training Funds - Includes:		
Collaborative funds	67	0
ASA funds	25	
Facilities funds	27	
IT funds: Should cover but not limited to:	333	
Microsoft Active Directory Training		
Office Suite Training		
IT System Training		
IT Application Training		
COTS Applications Software		
Web Server, Administrative and Systems Training		
CISCO Router Training		
Defacto Standard Applications Training		
Hydro Correspondence funds	0	
SANS Training	45	
University Assignment Program (UAP)	0	110
Table 1 Base Residence classes	2078	0
Table 1 AWIPS Residence Classes	673	0
Table 2 NSTEP Items	1710	0
Table 2 Initiative/Other Funding Items	0	773
TOTAL DISCRETIONARY BUDGETS	4461	773

TABLE 3 - FY 2004 NWS Training and Education Expenditures (7/15/03)

**Note: Dollar Amounts in K
NON-DISCRETIONARY BASE FUNDING**

	FY 2004 Budget
Non-PDS Costs	
COMET/UCAR Staff-Grant (non-FTE)	1900
NWSTC Admin.	320
COMET Van for students	30
COMET NWS SME Travel	30
Learning Management System - Recurring cost	0
NSTEP/PDS Coordination Meetings	30
Training Division (OS6) Budget	95
Teletraining Comms	40
PDS Costs	
NWP - COMET Staff at NCEP	277
Total Non-PDS Costs	2445
Total PDS Costs	277
TOTAL NON-DISCRETIONARY BUDGET	2722

Table 4: NWS PDS Status

Professional Development Series (PDS)	Professional Competency Units (PCUs)											
	1	2	3	4	5	6	7	8	9	10	11	12
Aviation PDSs (Weiss)												
* Forecasting Aviation Icing	N	N	N	N	U	U	N	N	N			
* Forecasting Turbulence	N	N	N	N								
* Impact on Aviation Weather on Customers	N	N	N	N								
* CWSU On-Station Systems / Operations	N	N	N	N	N	N						
* Issuing Effective CWSU Products	N	N	N	N								
* Forecasting Low-Altitude Clouds and Fog for Aviation Operations	U	N	U	U								
Convective PDS (Mahoney)												
	U	U	U	U	U	U	U	U	U	N		
Numerical Weather Prediction (Edman/Staudenmaier)												
	F	U	U									
Integrated Sensor Training (Mostek)												
	U	U	N	N	F	U	U	U	U			
Forecaster Development Program (FDP) PDSs (Griffin)												
* FDP Phase 1 - Operational Basics	F	F	F	F								
* FDP Phase 2 - Forecast Familiarization	F	F										
* FDP Phase 3 - Professional Development	F	U	F	F								
Management / Leadership / Supervision PDSs (Clark)												
* Office Management and Administration	N	N	N	N								
* Leadership	F											
* Human Resource Management	F	F	F									
* Customer / Partner Service Management	N	N										
Hydrology PDSs (Zimmerman/Helble)												
* Quantitative Precipitation Forecasts (Graziano)	U	U	U	U	U	U						
* Managing the Hydrology Program	F	F	U	F	F	F	F	F	F	F		
* Hydrologic Forecasting	U	U	U	U	U	U	N	U	U	U	N	U
* Forecasting Flash Flood Events	N	N	N	N	N	N						
* Model Calibration/Hydrologic Procedure Development	U	U	N	U	U	U	U	U	U	U	N	
* Assessing Near-Term Hydrologic Guidance & Issuing Public Forecasts	U	U	U	U	U							
* Ensemble Hydrologic Forecasting	U	U	N	U	U	U	U					
* Assimilating Hydrometeorological Data	U	U	U	N	U							
AWIPS PDSs (NWSTC)												
* Implementing Local Applications on AWIPS	F	F	F	F	F							
* AWIPS System Administration and Maintenance	F	F	F	F	F	F	F	F	F	F	F	F
* Operating AWIPS	N	U	U	U	N	U	U					

F = Finished
 U = Under Development
 N = Not Started

Table 4: NWS PDS Status (cont.)

Professional Development Series (PDS)	Professional Competency Units (PCUs)											
	1	2	3	4	5	6	7	8	9	10	11	12
Engineering PDSs												
* Facilities Maintenance (Duxbury / Grahl)	U	U	U	U								
* Facilities Management (Beeman)	U	U	U	U	U							
* Environmental Compliance (M. Jacob)	F	F	F									
* WSR-88D Maintenance (Richards / Ballard / Wissman)	U	U	U	U	U	U	N	N	N	N	N	N
* NWR Maintenance (Haskins)	F	F	F	F	F	F	F	F	F	F	F	F
* Upper Air (Profiler) Maintenance (Zichy)	F	F	F	U	U	U	U	U	U			
* Data Acquisition / Dissemination Sys. Maint. (Ryman)	U	U	U	U	U	U	U	U				
* IT Systems and Network Support (Murray / Walker)	U	U	U	U	U	U	N	N	N	N	N	
* General Engineering Skills (All EPMs)	F	F	F	F	F							
* Safety and Health (M. Jacob)	U	U	U	U								
* ASOS (PACE) Maintenance (Retzuff / Haskins)	N	N	N	N	N	N	N	N				
DAPM / HMT PDSs												
* Coop Program Management (Horvitz)	F	F	F	F	F	F	F					
* Surface Observing Program (Ross)	F	F	F	F	F	F	F					
* Upper Air Program (Bower)	U	U	U	U	U							
Marine Weather Services (May)	U	U	U	U	U	U	U	U	U	U	U	U
Fire Weather PDSs (Billingsley)												
* Fire Weather	F	F	U	U								
* Incident Meteorologist (IMET)	F											
Climate Services (Livezey/Timofeyeva)	U	U	U	U	U	N						
Administrative (ASA) (Dickenson)	U	U	U	U	U	U	U	U				
IFPS Training (Motta)	U	U	U	U	U	U	U	U				
Winter Weather (Mahoney)	F	F	U	U	U	F	U	F				

F = Finished
 U = Under Development
 N = Not Started

Table 5
FY 2004 Prioritized Unfunded List

This list of unfunded items for FY 2004 was prioritized by the NSTEP's Field Requirements Group.

<u>Item</u>	<u>Cost</u>	<u>Cumulative Cost</u>
1 IFPS Methodology Workshop	\$ 44K	\$ 44K
Regional Training Funds	\$212K	\$256K
1 Mesoscale Model Workshop	\$ 49K	\$305K
RFC/Hydrology Workshops	\$ 65K	\$370K
AMS Journals	\$110K	\$480K
Regional Aviation Workshops	\$200K	\$680K
2 Data Acquisition Operations classes	\$ 40K	\$720K
1 AWIPS Local Applications class	\$ 20K	\$740K
1 RFC/HPC Hydromet class	\$ 47K	\$787K
2 WHFS Workshops	\$ 18K	\$805K
1 Intermediate UNIX for ETs class	\$ 27K	\$832K
3 AWIPS Operations Support classes	\$111K	\$943K
Marine PDS Support	\$ 20K	\$963K
IT System Training	\$ 50K	\$1013K
1 WSR-88D Maintenance class	\$ 61K	\$1074K
1 Intermediate LINUX class	\$ 27K	\$1101K
5 CRS Maintenance classes	\$ 80K	\$1181K
National WCM Workshop	\$ 45K	\$1226K
National SOO/DOH conference	\$ 50K	\$1276K
WATADS replacement	\$ 70K	\$1346K
COMET classroom upgrade	\$120K	\$1466K
(upgrades COMET classroom AWIPS)		
LMS E-learning course access for all staff	\$150K	\$1616K
1 Cooperative Network Operations class	\$ 38K	\$1654K
Hydrology Training via USGS courses	\$ 30K	\$1684K
MDCRS Training	\$ 40K	\$1724K
Satellite HydroMet Course Development	\$ 30K	\$1754K
2 AWIPS Systems Manager classes	\$104K	\$1858K
Senior Leadership Potential Program (SLPP)	\$210K	\$2068K
1 WSR-88D MLOS Maintenance class	\$ 23K	\$2091K
IT Security Training Course	\$ 5K	\$2096K
1 CRS Network Operations class	\$ 9K	\$2105K
3 Crown Transmitter Maintenance classes	\$ 15K	\$2120K
LMS - new functionality	\$ 40K	\$2180K
COTR Training	\$ 60K	\$2240K
IT Application Training	\$ 20K	\$2260K
<u>New Items Proposed by Regions</u>		
SOO/DOH/WCM funds (ER)	\$250K	
WSR-88D ORPG Maintenance (WR)	TBD	
Note: WR feels this should continue. NWSTC is adding this into the 88D Maint. course for FY04		
Dupont Safety Training for Managers (SR)	\$100K	
STAR Training (SR)	\$ 50K	
LINUX System Administration (SR)	\$ 50K	
2 Field Operations Management classes (SR)	\$ 58K	
1 Management and Supervision class (AR)	\$ 40K	
IFPS Fire Weather Program Wkshop	\$ 35K	
IFPS Marine Program Workshop/Short Course	\$ 35K	
IFPS Operations Course	\$ 25K	
IFPS Smart Tool Basics Course	\$ 25K	
IFPS Local Applications Course	\$ 25K	
Python Training / Numerical Python Training.	\$230K	
Workshops/Courses on GFE Formatter, Smart Intialization, Smart Tools and a revised Focal Point Workshop/Course	\$260K	
2 Boundary Layer Symposia	\$ 51K	

Attachment 1
SUMMARY OF TABLE 1: FY 2004 IN-RESIDENCE TRAINING CLASSES

NWSTC courses

ASOS Maintenance - 13 days

Who Attends: Technicians with ASOS maintenance responsibility. Pre-requisites.

Objective: To provide NWS Electronics Technicians with the knowledge and skills necessary to calibrate, perform preventive maintenance, and perform corrective maintenance on the ASOS system including all sensors. Corrective maintenance will be taught to the Field Replacement Unit (FRU) level consistent with the current ASOS maintenance philosophy. Students will be taught both the diagnostic and operational levels of ASOS communications software. Students will leave the course with an understanding of the overall concept of the ASOS system including the underlying algorithms.

Intro to NWS Systems - 3 days

Who Attends: New technicians needing immediate NWS systems familiarization.

Objective: To provide the new technician with an introduction to the hardware and software architecture of NWS systems, including interconnecting data flows. Systems introduced are: WSR-88D, ASOS, AWIPS, ART, NWR, CRS. Also provides technicians with an overview of the NWS organizational structure including headquarters, regions and the local NWS office. Finally, provides a basic overview of Engineering Handbooks, Integrated Logistics Support, EMRS and CLS, NRC and NLSC, and configuration management.

ART Rawinsonde System Maintenance - 13 days

Who Attends: Electronics Technicians with ART Maintenance Responsibility.

Objective: To provide the electronic technician with the skills required to align, calibrate and maintain the ART system and associated ground equipment to National Weather Service standards.

Fall Protection and Rescue - Attrition Training - 3 days

Who Attends: Electronics Technicians who must climb towers in order to repair equipment.

Objective: To teach technicians proper tower climbing and rescue skills.

WSR-88D Maintenance - 33 days

Who Attends: Electronics Technicians with WSR-88D maintenance responsibility.
Pre-requisites.

Objective: To provide attendee with knowledge, skills and abilities needed to initialize, configure, correctly shut down, monitor, test, troubleshoot, perform data backup data and otherwise maintain applicable hardware and software associated with the WSR-88D system.

WSR-88D MLOS Maintenance - 3 days

Who Attends: Electronics Technicians at MLOS sites.

Objective: To provide the skills and knowledge required to perform installation, operation and maintenance of the equipment so as to achieve a minimum of downtime. Covers proper procedures to eliminate equipment damage resulting from incorrect handling as well as how to relate the comprehensive documentation in the instruction manual to actual equipment operation and maintenance. Provides understanding of the test equipment appropriate to your system and how Farinon equipment operation relates to the entire telecommunication system. Finally, covers troubleshooting at a module level and performance monitoring techniques to maintain an initial level of system operation.

WSR-88D Open RDA Maintenance - 10 days (NEW FOR FY 2004)

Who Attends: Electronics Technicians with WSR-88D maintenance responsibility. *Pre-requisites* TBD.

Objective: To provide NWS, FAA, and Air Force Electronics Technicians with the knowledge and skills necessary to calibrate, perform preventive maintenance, and perform corrective maintenance on the ORDA system. Corrective maintenance will be taught to the Field Replacement Unit (FRU) level consistent with the ORDA maintenance philosophy (TBD). Students will leave the course with an understanding of the overall concept of the ORDA system including the All interfaces with the Legacy Equipment.

CRS Maintenance - 6 days

Who Attends: ETs/ESAs with CRS maintenance responsibility, two per site. *Pre-requisites.*

Objective: To provide ETs and ESAs with the skills and knowledge necessary to maintain and support the field NWS CRS systems.

AWIPS Systems Manager - 12 days

Who Attends: ESA only. Pre-requisites.

Objective: To provide the site ESA (or RFC equiv.) with a deeper understanding of AWIPS hardware, communications, software components and dataflow than what was taught in prior AWIPS C.U.T. training. The emphasis will be on learning monitoring and problem-solving techniques in order to insure a secure and stable operating environment. Many troubleshooting exercises will be included. There will also be time for roundtable discussion between students to provide an opportunity to share useful AWIPS information derived at the field sites.

AWIPS Operations Support - 9.5 days

Who Attends: SOOs, DOHs, AWIPS Focal Points. Pre-requisites.

Objective: To ensure all sites have a trained focal point available outside core work hours to provide operational support to AWIPS and ensure its proper use. Course is similar to AWIPS System Managers course for ESAs in this regard but customized to mets and hydros.

AWIPS Applications - 3.5 days

Who Attends: For individuals who perform AWIPS local applications development. Introductory UNIX training a pre-requisite.

Objective: To provide developers the information and tools necessary to design, build, and test local applications on AWIPS. Focus will be on AWIPS-specific data access, programming tools (Perl and Tcl/TK) and information to enable development and porting of local applications to AWIPS.

Intermediate LINUX - 8 days (NEW FOR FY 2004)

Who Attends: Electronics Technicians (ETs). Introductory UNIX training a pre-requisite.

Objective: This course is currently under development, and will replace the previously offered Intermediate UNIX for ETs course.

Executive Leadership Seminar (ELS) - 8.5 days

Who Attends: MICs and HICs, Regional and NCEP Division Chiefs, NWSH Branch and Division Chiefs. SOOs, DOHs, WCMs, ESAs and NCEP/Regional/NWSH Program Managers may attend if unfilled slots. Pre-requisites.

Objective: To provide NWS managers with skills needed to develop a diverse workforce into a cohesive team, and to develop their ability to be more empathetic and effective. The course utilizes case studies, work groups/workshops, and informal assessments, along with attendees personal experiences, to focus on their values, attitudes, and management behaviors rather than on task-specific behavior.

Management and Supervision - 9.5 days

Who Attends: New MICs, HICs, ESAs, DAPMs, Regional and NCEP Division Chiefs, and NWSH Branch and Division Chiefs who haven't completed the 80-hour NOAA requirement for management training.

Objective: To provide the knowledge and skills needed by a new supervisor to effectively oversee the administration and operations of his/her WFO/RFC. Topics include: The NWS budget process; distinction between and diversity and their importance to WFO/RFC management; methods for assigning work, managing office routine, and using training to enhance office operations; managing personnel and performance issues; elements of effective communication; managing conflict with the WFO/RFC environment; responsibilities of office management with regard to local labor relations; and techniques for effective customer relations and dealing with the media and general public. New supervisors require this training within the first year of becoming a new supervisor.

Field Operations Management - 4 days

Who Attends: SOOs, WCMs, Lead Forecasters, NCEP Lead Forecasters, **and others who are in charge when MIC/HIC is not in office.** Pre-requisites.

Objective: To provide the knowledge and skills needed to manage WFO/RFC shift operations from a human resource and administrative perspective. Topics: responsibilities of office shift supervisors; utilizing a diverse workforce; working within the labor-management agreement; routine administrative tasks encountered during operational shifts; solving operational shift problems; performance and discipline issues; managing conflict within the operational environment; dealing with substance abuse; and basic leadership concepts.

Cooperative Network Operations - 8 days

Who Attends: Cooperative Program Focal Point (usually DAPM or HMT). Pre-requisites.

Objective: To provide the knowledge and skills needed to maintain and manage the Coop Observing Program and its associated equipment. Topics include: Coop network requirements, purposes, and objectives; recruiting and training observers; installing and maintaining cooperative network equipment; CPM program duties; the role of NCDC and other agencies in the coop program; performing quality control on coop network data and managing program operations.

CRS Network Operations - 3 days

Who Attends: CRS Operations Focal Point. Pre-requisite - a working knowledge of basic UNIX commands.

Objective: To provide the knowledge and skills that a CRS focal point needs to set up and manage the WFO CRS operations. Topics include: CRS operational concepts and terminology; CRS user interfaces and product configuration; Emergency override and backup live operations; set up and/or modification of the ASCII database text files and dictionary files; backup and/or restoration of the CRS database and CRS dictionary files; master processor switch procedure; front-end processor (FEP) switch procedure; set up and configuration of the CAFÉ formatter on AWIPS.

WFO Hydrology Program Management - 8 days

Who Attends: Service Hydrologists and Hydrologic Focal Points. Goal is to provide basic management concepts specific to office hydrology programs. Pre-requisites.

Objective: To provide Service Hydrologists and Hydrology Focal Points with the basic knowledge and skills to manage the WFO hydrology program. This course covers a spectrum of topics dealing with the management of a WFO hydrology program. Lessons address policy guidance, local training, the duties of a Service Hydrologist and a Hydrology Focal Point, data collection, quality control, hydrologic networks, establishing forecast points, local development efforts, interacting with the RFC and other groups, post flood activities, media relations, and verification procedures.

WHFS Workshop - 3.5 days

Who Attends: Service Hydrologists, Hydrologic Focal Points and one other WFO attendee.

Objective: To develop a basic proficiency in the use of the AWIPS WHFS application. This course focuses on the developing a basic proficiency in the use of the AWIPS WHFS application. It covers in detail the HydroBase, HydroView, and RiverPro segments of WHFS with an emphasis on hands-on use of these applications. The concept of train-the-trainer is discussed and suggestions made about how to conduct on-station training. This workshop is designed as a train-the-trainer workshop. The two individuals who attend this workshop are expected to return to their office and teach their staff how to use WHFS.

Environmental Compliance Training (Attrition) - 3 days

Who Attends: Environmental Compliance Focal Points.

Objective: To teach environmental compliance regulations to comply with WSOM Chapter A-46. This course is taught by a contractor. This course is being revamped for FY03...so all focal points will need to attend.

Data Acquisition Operations - 4 days

Who Attends: Data Acquisition Staff (Usually HMTs, DAPMs, Met. Interns). Pre-requisites.

Objective: To address a long term need, this course is designed to provide the knowledge and skills needed to manage and operate the data acquisition program and its associated equipment. Management and operation of the cooperative program is excluded since it is covered in a separate course. Topics include: NWS policy and procedures; barometry; station inspections; quality control of observations; dissemination and receipt of data; collection and quality control of mesonet data; roles of other agencies and supplementary observations. In addition, training on interacting with people from diverse backgrounds will be included.

Crown Transmitter Maintenance - 3 days

Who Attends: ESAs, ETs. Pre-requisites.

Objective: In accordance with Strategic Plan Item 1.1; Increase coverage of NWR transmitter network to 95% of U.S. population; additional training of ET staff is required due to the additional NWR transmitters being procured.

Advanced WHFS Workshop - 3.5 days

Who Attends: WFO Service Hydrologists/Hydro Focal Points and RFC forecasters who have attended initial WHFS workshop.

Objective: To focus on the implementation of the site-specific forecast functionality and the multi-sensor precipitation estimation (MPE) function within the AWIPS WHFS software. These two functions take the WHFS from a simple hydrologic data analysis and monitoring package to a coupled, hydrometeorological forecasting and prediction tool, resulting in the need for enhanced coordination between the WFO hydrology program and the supporting RFCs. The course will discuss the basic requirements for the site-specific function, including the development of unit hydrographs and production of headwater guidance; execution of the model; and creation of forecast hydrographs. The MPE function, which has been implemented at the RFCs, will now be part of the WHFS. Discussion will include how the precipitation estimates are generated; use of the MPE estimates in hydrometeorological analysis; and use of the MPE estimates as input into site-specific.

Safety Training (attrition) - 3.5 days

Who Attends: Office safety and health focal points.

Objective: This safety course has been developed to provide guidance to field personnel (safety focal points) on how to implement the NWS Safety Procedures published in Engineering Handbook No.15 (EHB-15). EHB -15 can be downloaded from the web site: <http://www.oso3.nws.noaa.gov/safety/ehb-15.htm>. The purpose of this course is not to provide specific instructions on each procedure contained in EHB-15, but rather to provide guidance on how to implement the NWS Safety Procedures at NWS facilities.

SRS Transmitter Maintenance - 3 days

Who Attends: ESAs, ETs.

Objective: In accordance with Strategic Plan Item 1.1; Increase coverage of NWR transmitter network to 95% of U.S. population; attrition training of ET staff is required for existing NWR SRS transmitters in the field.

Armstrong Transmitter Maintenance - 3 days (40 slots)

Who Attends: ESAs, ETs.

Objective: In accordance with Strategic Plan Item 1.1; Increase coverage of NWR transmitter network to 95% of U.S. population; additional training of ET staff is required due to the additional Armstrong NWR transmitters being procured/installed.

Radiosonde Replacement System (RRS) Maintenance - 6 days

Who Attends: ESAs, ETs.

Objective: To provide site personnel (ESA, ET) with sufficient familiarization with the system to perform operation, maintenance and repair. Maintenance training shall use a "hands-on" approach to instructions. Graduates of the maintenance course shall be able to: assemble and disassemble the RRS system and lowest repairable units in accordance with the manufacturer's instructions and documentation; perform troubleshooting to identify and isolate malfunctions in wiring, printed circuit boards, assemblies, and subassemblies; analyze available programming techniques to perform system/subsystem interface checks; and perform corrective and preventative maintenance of equipment.

COMET courses

IFPS Methodology Workshop - 5 days (held either at FSL or the NWSTC)

Who Attends: IFPS Focal Points or any WFO Forecast Staff.

Objectives: The workshop will focus on discovering how to make best use of IFPS in the forecast process. Participants select their best local IFPS methodology or practice from their office to present to the rest of the attendees. Presentations from national trainers and software developers will cover items of national concern.

Flash Flood Workshop - 3 days (NEW FOR FY04)

Who Attends: All WFO Forecast Staff.

Objectives: Course will cover in detail flash flood guidance and the hydrometeorology of flash flooding. The course will discuss the strengths and limitations of flash flood guidance; events which can lead to the onset of flash flooding; the use of the Flash Flood Monitoring and Prediction (FFMP) application as a decision-making tool during heavy precipitation events; and use case studies as a training tool.

COMET Mesoscale Analysis and Prediction Course (COMAP) - 30 days

Who Attends: New Science and Operations Officers (SOOs)

Objectives: Course is designed to increase participants' knowledge of mesoscale meteorology and new observing systems, and to enhance their capabilities in forecasting, leading training programs, and participating in research activities.

Climate Symposium - 4.5 days

Who Attends: SOOs / Climate Focal Points (Train-the-Trainer).

Objective: To provide background on all NWS climate products to answer questions from the public on how climate fluctuations affect local weather variability, as well as on the latest developments in the climate analysis and forecasting.

Basin Customization/Localization Training Course - 3 days

Who Attends: WFO Service Hydrologist and hydro focal points. Pre-requisite - all attendees must be proficient with ArcView.

Objective: Course content includes; an overview to the Flash Flood Monitoring and Prediction (FFMP) approach and the basin delineation process, learning to customize and localize the original delineated basin set provided by NSSL, and identifying areas where the basin data set would be modified to enhance services, detailing the process necessary to perform/implement these enhancements.

Boundary Layer Meteorology COMAP Symposium - 4.5 days

Who Attends: SOOs

Objective: Boundary layer and micrometeorology training supports the NWS goal for nationwide implementation of IFPS at each WFO by the end of FY 2003. Forecasters need background training in micrometeorology and boundary layer processes in order to fully exploit IFPS capabilities to produce value-added forecast products for a variety of users and decision makers in the public and private sector. The symposium will address relevant micrometeorology and boundary layer topics such as soil type, soil moisture, vegetation, lakes, complex terrain, etc. Scientific background on IFPS algorithms and tools will also be provided.

Canada Winter Weather Workshop - 10.5 days

Who Attends: Selected Winter Weather Focal Points (6 NWS students total)

Objective: The course focuses on hazardous winter season meteorology, from the synoptic scale to the mesoscale. The ultimate goal of the course is for participants to increase their understanding of winter weather phenomena and then to transfer this knowledge to their local offices.

WARNING DECISION TRAINING BRANCH (WDTB)

WSR-88D Distance Learning Operations Course Workshop (DLOC) - 3.5 days at COMET

Who Attends: All new mets and hydros. DL plus 3.5 day in-residence workshop. Pre-requisites.

Objective: To provide initial, comprehensive training on the use and interpretation of products from the WSR-88D to facilitate the use of the radar in the production of operational forecasts and warnings. This 3.5 day workshop is supplemented with distance learning materials to be completed on-station and a series of teletraining sessions to comprise the entire DLOC course.
